

*Observations of the Great Comet (b) 1882, made at Dalston,
London, E. By B. J. Hopkins.*

(Communicated by the Earl of Crawford.)

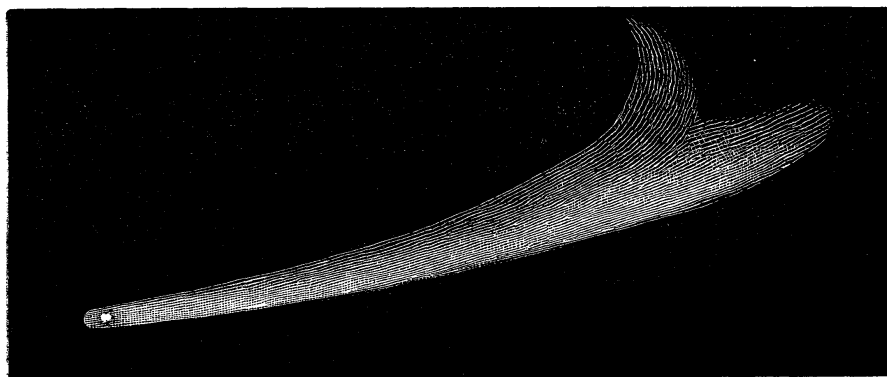
The instrument with which the following observations were made is a refractor of five inches aperture. The full aperture, and a Ramsden eyepiece having a power of 107, was always used.

1882, Nov. 4, 17^h 0^m.—The tail had an apparent length of 20°, and a breadth at the extreme end of 1° 30'. It slightly curved upwards, was very diffused at the end, and was divided into two portions by a dark rift for two-thirds of its length from the nucleus.

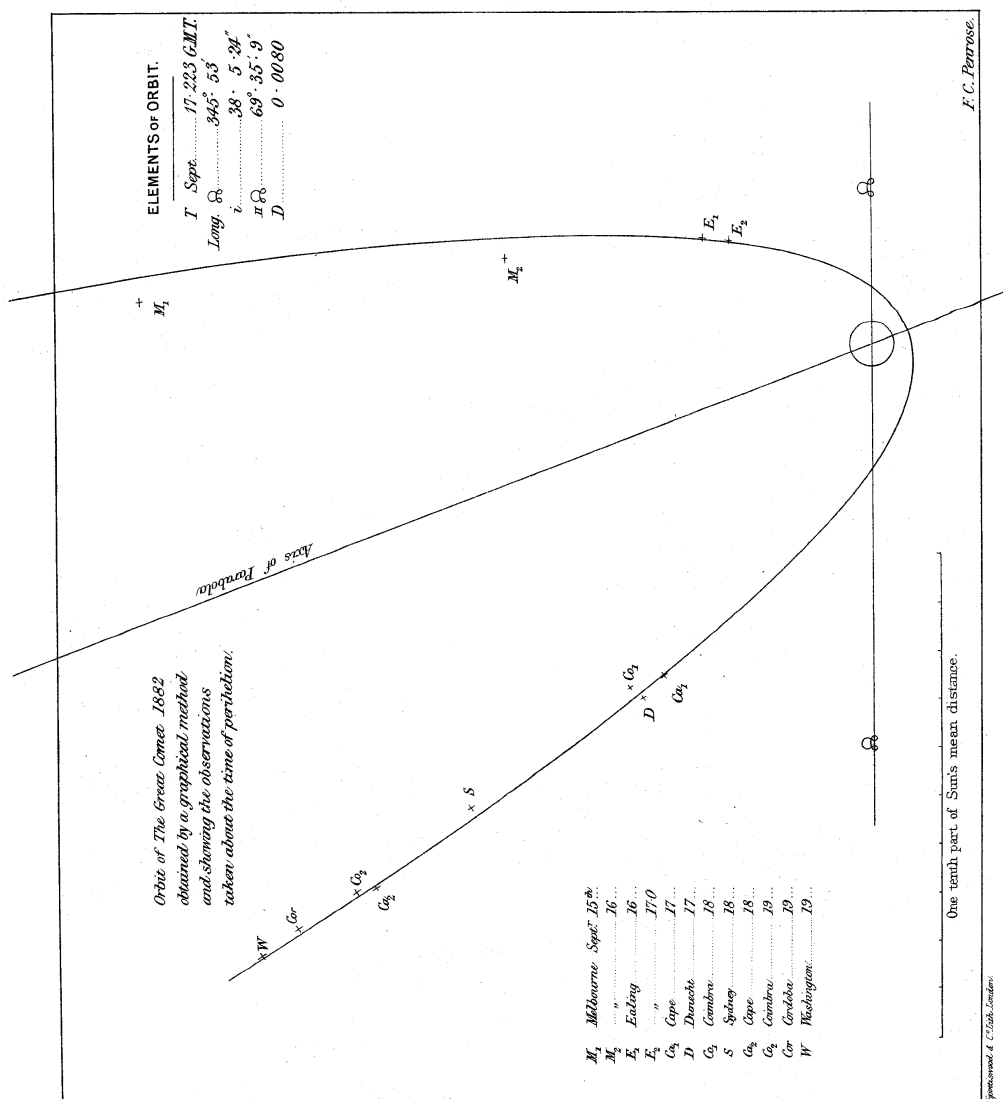
Nov. 4, 17^h 50^m.—The nucleus was of a yellowish-white colour, oval in shape, with the major-axis in the direction of the tail, and surrounded with a dense nebulosity.

Nov. 8, 16^h 50^m.—The tail could be distinctly traced for 19°. It was straight for four-fifths its length. It then abruptly curved upwards, and spread itself out in the shape of a fan, with a breadth of 4°. The dark rift was not so conspicuous as on the 4th inst., though the tail still remained brightest on the southern side.

Nov. 8, 17^h 30^m.—The nucleus, as viewed by the naked eye, appeared equal to a second magnitude star. Observed with the telescope, a great change was seen to have taken place since last observed, for it now had the appearance of being double, there being two portions of equal brightness separated by a space of less brightness, the whole being surrounded by a dense circular nebulosity. The division between the two portions was only just seen, and the line joining them was at an angle with the axis of the tail.



Nov. 14, 15^h 45^m.—The tail I now saw to much better advantage than I had hitherto observed it. It had a length of 30°, and was divided into two portions at the extreme end, the northern half curving very sharply upwards as in the figure, and separated from the southern branch by a semicircular space,



the general form of the tail being very similar to the Greek character γ . The southern side still remained the brightest.

Nov. 14, 17^h 30^m.—The nucleus: the two concentrations of light were smaller, more elongated, and much closer together than when last observed. It was only through the definition being exceptionally good that the division could be seen. The whole nucleus was greatly changed, being much narrower and longer than on the 8th inst.

The Orbit of the Great Comet (b) 1882. By F. C. Penrose.

I have obtained by graphical means the elements given below. They are based on

- (1) A meridian observation at Washington Sept. 21.
- (2) Observations at Rome and Palermo Oct. 1.
- (3) Rome, Palermo, Lund, and Athens Oct. 11.

And corrected by Cambridge University Nov. 26.

T	...	...	...	Sept. 17.223
Long. of \odot	...	...	...	345° 53' 0"
i	...	...	...	38 5 24
$\pi - \odot$	...	...	...	69 35 9
Distance	...	...	...	[7.90309]

The orbit not being distinguishable from a parabola.

The places observed before perihelion do not exactly fit these elements, but would do so if the axis of the parabola be changed about 2° in its own plane. I have not succeeded in finding an orbit with an undeflected axis which would give a good account of the observations taken both before and after perihelion.

The accompanying plate shows the positions observed within about three days of the perihelion as reduced to the node and inclination given above.

It will be seen that the parabola threads its way amongst those taken after perihelion very satisfactorily.

I should add that the graphical work in itself appears to me capable of bringing out an approximation within ten minutes of arc of the finally concluded elements; and that may, I think, be taken as about the limit, unless a very large and inconvenient scale be adopted. The remaining work is done by adjusting the differences numerically.

The observations were corrected for parallax and aberration; and I found that near the perihelion even the graphical work in this orbit was affected very sensibly by these adjustments.

1882, Jan. 12.
